



PROPOSED SHORT-LIVED CLIMATE POLLUTANT REDUCTION STRATEGY

May 19, 2016

2016-2017 Proposed Budget

- Governor Brown's 2016-2017 Proposed Budget includes \$215 million from Cap-and-Trade expenditures specifically targeting SLCP emission reductions



- \$40 million for black carbon residential woodsmoke reductions
- \$20 million for HFC reductions from refrigerants
- **\$100 million for waste diversion**
- \$20 million for Healthy Soils
- \$35 million for dairy digester development

Organics Disposal

- ARB will work with CalRecycle to develop a regulation by 2018 to effectively eliminate organic disposal in landfills by 2025
- The 2014 Scoping Plan Update calls for eliminating the disposal of organic materials at landfills
- CalRecycle will identify ways to develop necessary organics recycling capacity
- CalRecycle will explore ways to meet a goal of 10% food rescue by 2020 and 20% by 2025



Reducing Methane Emissions

- Need additional reductions to meet goal to reduce GHG emissions by 40% below 1990 levels by 2030
- Before State can fully use existing organic waste streams for beneficial purposes, there is a need for:
 - ▣ Significant AD, composting, and chipping and grinding infrastructure capacity
 - ▣ Appropriate market opportunities for compost and captured methane



State and Local Government Support

- State will develop tools such as programmatic EIRs or guidance documents
- Local governments must play a role in diverting organics both as land use and permitting authorities for recycling facilities and as partners in implementing diversion requirements



Funding for Infrastructure

- Continued, increased State funding
- Increase in California's Integrated Waste Management Fund
- State support of at least \$100 million per year for 5 years



Solutions for Reducing Methane Emissions

- Resolve existing constraints in the permitting process and provide clear standards and compliance pathways
- Common workshops and work group efforts with dairies/WWTPs
- Standards for the direct application of organic materials on land
- Establish food rescue programs
- Expand markets for compost, mulch, renewable fuels and energy
- Incentivize use of compost on agricultural lands to support Healthy Soils Initiative

Reducing Methane Emissions Through Use of WWTPs

- Program to ensure that new/existing WWTPs fully implement methane capture systems and maximize digestion of regional organic materials
- Capturing biogas to produce electricity may result in facility being reclassified as electricity generation -- subject to more onerous emission compliance and abatement equipment rules
- ARB and state/local agencies will remove financial and regulatory barriers that hinder productive use of waste streams at WWTPs



Economic Assessment of Measures in the Proposed Strategy

- Proposed Strategy recommends reducing organics deposited to landfills by 90% by 2025 consistent with AB 341
- Analysis focuses on capture and pipeline injection of RNG from diverted organic waste
- State could supplement financing of biomethane projects with upfront grants, loan assistance programs, and tax incentives
- The US EPA's RFS and CA's LCFS program can offset large upfront capital costs that otherwise may prevent project development

Estimated Number of New Facilities

Scenario	Estimated Number of New Compost Facilities to Achieve Target			Estimated Number of New AD Facilities to Achieve Target		
	2020	2025	2030	2020	2025	2030
1. New AD	43	52	54	40	56	58
2. Existing WWTP	50	62	65	-	-	-
3. Compost Only	76	97	102	-	-	-

Cumulative Estimated Costs and Revenues: 10-Year Accounting Period

Scenario 1: New AD	Component	Capital Cost	O&M	Revenue
New AD	54 Facilities	\$1,200	\$2,100	\$5,800
New Compost	58 Facilities	\$600	\$650	\$1,200
Total		\$1,800	\$2,750	\$7,000
10-Year Net Present Value		\$2,500		
Scenario 2: WWTP	Component	Capital Cost	O&M	Revenue
New Compost	65 Facilities	\$720	\$790	\$1,500
Existing Wastewater Treatment	118 Facilities	\$1,300	\$3,700	\$5,100
Total		\$2,020	\$4,490	\$6,600
10-Year Net Present Value		\$162		
Scenario 3: Compost	Component	Capital Cost	O&M	Revenue
New Compost	102 Facilities	\$1,000	\$1,100	\$2,100
Total		\$1,000	\$1,100	\$2,100
10-Year Net Present Value		-\$43		

Net Present Value Under Varying LCFS and RIN Credit Prices

		Wastewater Treatment Facility					New AD Facility				
		<u>LCFS credit price</u>					<u>LCFS credit price</u>				
		\$0	\$50	\$100	\$150	\$200	\$0	\$50	\$100	\$150	\$200
Cellulosic RIN credit prices	\$0.00	-\$17.0	-\$12.1	-\$7.2	-\$2.2	\$2.7	-\$34.4	-\$18.9	-\$3.4	\$11.9	\$27.3
	\$0.50	-\$8.1	-\$3.1	\$1.8	\$6.7	\$11.7	-\$14.4	\$0.9	\$16.4	\$31.8	\$47.3
	\$1.00	\$0.9	\$5.8	\$10.8	\$15.7	\$20.7	\$5.4	\$20.9	\$36.3	\$51.8	\$67.2
	\$1.85	\$16.3	\$21.2	\$26.1	\$31.1	\$30.0	\$39.3	\$54.8	\$70.2	\$85.6	\$101.1
	\$2.50	\$27.9	\$32.9	\$37.8	\$42.8	\$47.8	\$65.2	\$80.7	\$96.1	\$116.7	\$133.9
	\$3.00	\$36.9	\$41.9	\$46.9	\$51.8	\$56.8	\$85.2	\$100.6	\$116.0	\$131.5	\$146.9
	\$3.50	\$46.0	\$50.9	\$55.9	\$60.8	\$65.8	\$105.1	\$120.5	\$136.0	\$151.4	\$166.9
	\$4.00	\$55.0	\$59.9	\$64.9	\$69.9	\$74.8	\$125.0	\$140.5	\$155.9	\$171.4	\$186.8

Environmental Analysis

- In accordance with CEQA, ARB prepared a draft programmatic Environmental Analysis of the reasonably foreseeable compliance responses resulting from the implementation of the proposed measures
- Most environmental impacts were found to be less than significant
- The potentially significant and unavoidable adverse impacts were primarily related to short-term construction activities



Proposed SLCP Reduction Strategy

- Comments on the Proposed Strategy and Draft Environmental Analysis (EA) due May 26, 2016
- ARB staff will receive and consider comments on this Proposed Strategy and prepare a final Strategy
- Staff will present the final Strategy, final EA, and written responses to comments received on the EA to the Board at a public hearing in fall 2016



Draft SLCP Reduction Strategy

- The Task Force sent a comment letter to ARB on the Draft Strategy on December 21, 2015
- The permitting and construction time for new organics processing facilities may take too long to meet targets.
- Incorporate the use of thermal conversion technologies in achieving SLCP reduction goals.
- Evaluate results of the recently implemented recycling programs stipulated by AB 341 and AB 1826 before formulating goals for 2020 and 2025.

Proposed Comments

- While the plan identifies possible solutions for obstacles to reducing emissions, if the solutions are not implemented, the emissions reductions targets will be difficult to meet.
- The plan should expand on how to increase the production of low-carbon fuels.
- All state agencies should use long-term global warming potential values (GWPs) to measure the performance of projects receiving funding from the Greenhouse Gas Reduction Fund.